

NB-800m3/h NiBallastTM BWMS Shipboard Test Report

1st cycle of 800m3/h Test Report

2nd cycle of 800m3/h Test Report

3rd cycle of 800m3/h Test Report

(Translation from Chinese original)



Centre of Marine Environmental
Measurements, FIO, SOA

Test Report

Report Number: [2013] C0435

Entrust Entity: Jiangsu Nanji Machinery Co., Ltd

Samples: Water quality, Organisms (>10μm), Microbes

Inspection Institution: The First Institute Of Oceanography, SOA

Approval: Yin YueFen

Issue date: 2013-09-25

Address: No.6, Xianxia ridge road, Qingdao

Note

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Centre of Marine Environmental Measurements, FIO, SOA**Test report**

Report Number: [2013] C0435

Applicant	Name : Jiangsu Nanji Machinery Co., Ltd Address : No.1 Zhongyuan Road Industry District Taixing, Jiangsu, China			Contact : Liqing Wang Tel : 0523-87590805		
Sample Information	Sample arrival date: 2013.07.03, 2013.07.06			Testing period: 2013.07.03-07.25 Sample Numbers : 72		
	Name: water quality, organisms >10 μm, organisms, microbes.			State: Water samples were liquid in 2.5L plastic bucket; viable organisms concentrated in 150 mL PET bottles; water for microbes test in 500mL sterilized glass bottles.		
	Mark : S-A-B-C-X-T-S-2: S-sample; A-test cycle, include: 1,2,3; B-sampling point, include 1,2,4,5; C-sampling time during test cycle, include I,II,III, I-initial time of test, II-middle time of test, III-later period of test; X-test items, include: A,B,C,E,(for organisms ≥50 μm as A, organisms of 10 μm ~50 μm as B, microbes as C, Water quality as E; stay time as T; shipboard test as S; the second time shipboard test as 2).			Sample Transfer Number: 2013.07.03 2013.07.06		
	Acceptor & sampling person: YinYuefen					
	Code of submitting list: 201347					
	Test Items	Parameters	Standards	Test methods	device/type	Conner
Test Process	Water quality	Temperature (T°C), Salinity (S), TSS, POC	GB17378.4-2007	T°C, S, POC, by instrumental analysis; TSS: gravimetric method	Multi-parameter water quality meters YSI 6600; Element analyzer ELIII Balance AL104	Signature
	organisms	≥50μm	GB17378.7-2007	count with microscope	Nikon-TS100 microscope	Signature
	organisms	10μm~50μm	GB17378.7-2007	count with microscope	Nikon-TS100 microscope	Signature
	microbe	heterotrophic bacteria, <i>Vibrio cholerae</i> , <i>E.coli</i> , intestinal <i>Enterococci</i>	GB17378.7-2007	Plate method, Filter membrane method		Signature
Test Results	Appendix: Results of Shipboard Test Report of NiBallast™BWMS -----End of the Report-----					
Conner	Li JingXi	Verifier	Yang BaiJuan	Approver	YinYuefen	
Editing date	2013-09-23	Verifying date	2013-09-24	Approving date	2013-09-25	

Centre of Marine Environmental Measurements, FIO, SOA
 Report Number: [2013] C0435

Applicant	Name : Jiangsu Nanji Machinery Co., Ltd	contact: Liqing Wang
	Address : No.1 Zhongyuan Road Industry District Taixing, Jiangsu,China	Tel: 0523-87590805
	Sample arrival date: 2013.07.03,2013.07.06	Testing period: 2013.07.03-07.25
C O N C L U S I O N S		<p>The 800m³/h Shipboard test of NiBallastTMBWMS produced by Jiangsu Nanji Machinery Co., Ltd was conducted in waters between liuheng port, Zhejiang province and Qinhuangdao port, Hebei province. The results are as follows.</p> <ul style="list-style-type: none"> 1) The salinity, TSS, and POC of testing water were 24.72 psu, 57.68 mg/L and 0.45 mg/L, respectively. 2) Viable organisms ($\geq 50 \mu\text{m}$) in influent were found include <i>Favella azorica</i>, <i>Labidocera euchaeta</i>, <i>Evadne tergestina</i>, <i>Euchaeta concinna</i>, <i>opossum shrimp</i>, <i>Sagitt abedoti</i>, <i>Coscinodiscus sp.</i>,etc. The density of this size fraction in the influent was 3.20×10^4 cells per cubic meter. 3 days later, there was no any kind of organism in the effluent water of treated water. And 3 days later, the total density of organisms in effluent water of control tank was 1.70×10^3 cells per cubic meter. 3) The majority of the phytoplankton (10 $\mu\text{m} \sim 50 \mu\text{m}$) consists of <i>Skeletonema costatum</i>, <i>pleurosigma formosum</i>, <i>Coscinodiscus jonesianu</i>, <i>Chaetoceros curvisetus Cleve</i>, <i>Nitzschia closterium</i>, <i>Pediatrum sp.</i>, <i>Peridiniumperardiforme sp.</i>, <i>Ceratium tripos</i>. The density of this size fraction in the influent water was 6.53×10^2 cells per milliliter. 3 days later, the density of discharge water from treated tank was 2.1 cells per milliliter. And after 3days, the density of organisms in the control tank was 1.48×10^2 cells per milliliter. 4) Heterotrophic bacteria was abundant in influent before treatment, the density was 1.76×10^5 cells per milliliter. For <i>E.coli</i>, the density was 46 cfu per 100 milliliter; for <i>intestinal Enterococci</i>, was 5 cfu per 100 milliliter. <i>Vibrio cholerae</i> was not detected; 3 days later, in the discharge water of treatment tank, for <i>E.coli</i>, the density was 12 cfu per 100 milliliter. <i>Intestinal Enterococci</i> , <i>Vibrio cholerae O1</i> and O139 were not detected. 3 days later, in discharge water of control tanks, for <i>E.coli</i>, the density were 24 cfu per 100 milliliter; for <i>Vibrio cholerae</i>, 24 cfu per 100 milliliter, respectively. And no <i>Vibrio cholerae O1</i>, O139 organisms were detected.
Editor	Li JingXi	Verifier
Editing date	2013-09-23	Verifying date
		Yang BaiJuan
		Approver
		Yin Yuefen
		Approving date
		2013-09-25

Appendix : Results of Shipboard Test of NiBallastTM BWMS

S1 (Before the treatment systems)

Number	Test Items	10 min		50 min		80 min	
		NO.	result	NO.	result	NO.	result
1	Temperature (°C)	S-1-1-I-E- 0-S-2	22.28	S-1-1-II-E- 0-S-2	22.14	S-1-1-III-E- 0-S-2	24.14
2	Salinity (psu)		24.68		24.69		24.66
3	TSS (mg/L)		53.70		58.30		59.30
8	POC (mg/L)		0.43		0.47		0.47
9	Organisms $\geq 50 \mu\text{m}$ ($10^4 \text{cell}/\text{m}^3$)	S-1-1-I-A -0-S-2	3.15	S-1-1-II-A- 0-S-2	3.42	S-1-1-III-A- 0-S-2	2.98
10	Organisms $10 \mu\text{m} \sim 50 \mu\text{m}$ ($10^2 \text{cell}/\text{mL}$)	S-1-1-I-B- 0-S-2	6.60	S-1-1-II-B- 0-S-2	7.10	S-1-1-III-B- 0-S-2	6.90
11	<i>E.coli</i> (cfu/100mL)	S-1-1-I-C- 0-S-2	45	S-1-1-II-C- 0-S-2	43	S-1-1-III-C- 0-S-2	49
12	<i>intestinal Enterococci</i> (cfu/100mL)		4		6		4
13	<i>Heterotrophic bacteria</i> ($10^5 \text{cfu}/\text{mL}$)		1.74		1.74		1.79
14	<i>Vibrio cholerae</i> (cfu /100mL)		N.D.		N.D.		N.D.

S2 (before the control ballast tank)

Number	Test Items	10 min		50 min		80 min	
		NO.	result	NO.	result	NO.	result
1	Temperature (°C)	S-1-2-I-E- 0-S-2	24.29	S-1-2-II-E- 0-S-2	24.26	S-1-2-III-E- 0-S-2	25.23
2	Salinity (psu)		24.80		24.82		24.65
3	TSS (mg/L)		56.20		59.10		59.50
8	POC (mg/L)		0.46		0.43		0.45
9	Organisms ≥50 μm (10 ⁴ cell/m ³)	S-1-2-I-A -0-S-2	3.04	S-1-2-II-A- 0-S-2	3.41	S-1-2-III-A- 0-S-2	3.21
10	Organisms 10 μm~50 μm (10 ² cell/mL)	S-1-2-I-B- 0-S-2	6.00	S-1-2-II-B- 0-S-2	6.80	S-1-2-III-B- 0-S-2	5.80
11	<i>E.coli</i> (cfu/100mL)	S-1-2-I-C- 0-S-2	40	S-1-2-II-C- 0-S-2	46	S-1-2-III-C- 0-S-2	52
12	<i>intestinal Enterococci</i> (cfu/100mL)		3		4		6
13	<i>Heterotrophic bacteria</i> (10 ⁵ cfu/mL)		1.71		1.79		1.78
14	<i>Vibrio cholerae</i> (cfu /100mL)		N.D.		N.D.		N.D.

S4 (Discharge of treatment tank)

Number	Test Items	10 min		30 min		50 min	
		NO.	result	NO.	result	NO.	result
1	Temperature (°C)	S-1-4-I (1) -E-3d-S-2	24.48	S-1-4-II (1) -E-3d-S-2	24.38	S-1-4-III (1) -E-3d-S-2	24.45
		S-1-4-I (2) -E-3d-S-2	24.43	S-1-4-II (2) -E-3d-S-2	24.46	S-1-4-III (2) -E-3d-S-2	24.46
		S-1-4-I (3) -E-3d-S-2	24.49	S-1-4-II (3) -E-3d-S-2	24.44	S-1-4-III (3) -E-3d-S-2	24.48
2	Salinity (psu)	S-1-4-I (1) -E-3d-S-2	24.85	S-1-4-II (1) -E-3d-S-2	24.82	S-1-4-III (1) -E-3d-S-2	24.63
		S-1-4-I (2) -E-3d-S-2	24.68	S-1-4-II (2) -E-3d-S-2	24.79	S-1-4-III (2) -E-3d-S-2	24.89
		S-1-4-I (3) -E-3d-S-2	24.67	S-1-4-II (3) -E-3d-S-2	24.69	S-1-4-III (3) -E-3d-S-2	24.82
3	TSS (mg/L)	S-1-4-I (1) -E-3d-S-2	22.30	S-1-4-II (1) -E-3d-S-2	22.90	S-1-4-III (1) -E-3d-S-2	28.50
		S-1-4-I (2) -E-3d-S-2	21.70	S-1-4-II (2) -E-3d-S-2	22.50	S-1-4-III (2) -E-3d-S-2	30.10
		S-1-4-I (3) -E-3d-S-2	23.10	S-1-4-II (3) -E-3d-S-2	24.10	S-1-4-III (3) -E-3d-S-2	29.10
4	POC (mg/L)	S-1-4-I (1) -E-3d-S-2	0.27	S-1-4-II (1) -E-3d-S-2	0.30	S-1-4-III (1) -E-3d-S-2	0.37
		S-1-4-I (2) -E-3d-S-2	0.27	S-1-4-II (2) -E-3d-S-2	0.30	S-1-4-III (2) -E-3d-S-2	0.39
		S-1-4-I (3) -E-3d-S-2	0.30	S-1-4-II (3) -E-3d-S-2	0.32	S-1-4-III (3) -E-3d-S-2	0.40
5	Organisms ≥50 µm (cell/m³)	S-1-4-I (1) -A-3d-S-2	0	S-1-4-II (1) -A-3d-S-2	0	S-1-4-III (1) -A-3d-S-2	0
		S-1-4-I (2) -A-3d-S-2	0	S-1-4-II (2) -A-3d-S-2	0	S-1-4-III (2) -A-3d-S-2	0
		S-1-4-I (3) -A-3d-S-2	0	S-1-4-II (3) -A-3d-S-2	0	S-1-4-III (3) -A-3d-S-2	0
6	Organisms 10 µm~50 µm (cell/mL)	S-1-4-I (1) -B-3d-S-2	2.5	S-1-4-II (1) -B-3d-S-2	1.9	S-1-4-III (1) -B-3d-S-2	1.8
		S-1-4-I (2) -B-3d-S-2	1.8	S-1-4-II (2) -B-3d-S-2	2.5	S-1-4-III (2) -B-3d-S-2	1.9
		S-1-4-I (3) -B-3d-S-2	2.2	S-1-4-II (3) -B-3d-S-2	1.8	S-1-4-III (3) -B-3d-S-2	1.7

S4 (Discharge of treatment tank) Continue

Number	Test Items	10 min		30 min		50 min	
		NO.	result	NO.	result	NO.	result
7	<i>E.coli</i> (cfu/100mL)	S-1-4-I (1) -C-3d -S-2	10	S-1-4-II (1) -C-3d -S-2	11	S-1-4-III (1) -C-3d -S-2	12
		S-1-4-I (2) -C-3d -S-2	12	S-1-4-II (2) -C-3d -S-2	11	S-1-4-III (2) -C-3d -S-2	14
		S-1-4-I (3) -C-3d -S-2	10	S-1-4-II (3) -C-3d -S-2	12	S-1-4-III (3) -C-3d -S-2	12
8	intestinal <i>Enterococci</i> (cfu /100mL)	S-1-4-I (1) -C-3d -S-2	N.D.	S-1-4-II (1) -C-3d -S-2	N.D.	S-1-4-III (1) -C-3d -S-2	N.D.
		S-1-4-I (2) -C-3d -S-2	N.D.	S-1-4-II (2) -C-3d -S-2	N.D.	S-1-4-III (2) -C-3d -S-2	N.D.
		S-1-4-I (3) -C-3d -S-2	N.D.	S-1-4-II (3) -C-3d -S-2	N.D.	S-1-4-III (3) -C-3d -S-2	N.D.
9	<i>Vibrio cholerae</i> O1 (cfu /100mL)	S-1-4-I (1) -C-3d -S-2	N.D.	S-1-4-II (1) -C-3d -S-2	N.D.	S-1-4-III (1) -C-3d -S-2	N.D.
		S-1-4-I (2) -C-3d -S-2	N.D.	S-1-4-II (2) -C-3d -S-2	N.D.	S-1-4-III (2) -C-3d -S-2	N.D.
		S-1-4-I (3) -C-3d -S-2	N.D.	S-1-4-II (3) -C-3d -S-2	N.D.	S-1-4-III (3) -C-3d -S-2	N.D.
10	<i>Vibrio cholerae</i> O139 (cfu /100mL)	S-1-4-I (1) -C-3d -S-2	N.D.	S-1-4-II (1) -C-3d -S-2	N.D.	S-1-4-III (1) -C-3d -S-2	N.D.
		S-1-4-I (2) -C-3d -S-2	N.D.	S-1-4-II (2) -C-3d -S-2	N.D.	S-1-4-III (2) -C-3d -S-2	N.D.
		S-1-4-I (3) -C-3d -S-2	N.D.	S-1-4-II (3) -C-3d -S-2	N.D.	S-1-4-III (3) -C-3d -S-2	N.D.

S5 (Discharge of control tank)

Number	Test Items	10 min		30 min		50 min	
		NO.	result	NO.	result	NO.	result
1	Temperature (°C)	S-1-5-I- E-3d-S-2	23.87	S-1-5- II -E-3d-S-2	24.76	S-1-5-III -E-3d-S-2	25.05
2	Salinity (psu)		24.85		24.82		24.68
3	TSS (mg/L)		43.50		41.70		45.20
4	POC (mg/L)		0.39		0.38		0.40
5	Organisms $\geq 50 \mu\text{m}$ ($10^3 \text{cell}/\text{m}^3$)	S-1-5-I- A-3d-S-2	1.91	S-1-5- II -A-3d-S-2	1.99	S-1-5-III -A-3d-S-2	1.21
6	Organisms $10 \mu\text{m} \sim 50 \mu\text{m}$ ($10^2 \text{cell}/\text{mL}$)	S-1-5-I- B-3d-S-2	1.48	S-1-5- II -B-3d-S-2	1.50	S-1-5-III -B-3d-S-2	1.46
7	<i>E.coli</i> (cfu/100mL)	S-1-5-I- C-3d-S-2	21	S-1-5- II -C-3d-S-2	25	S-1-5-III -C-3d-S-2	24
8	intestinal <i>Enterococci</i> (cfu/100mL)		3		5		5
9	<i>Vibrio cholerae</i> O1 (cfu /100mL)		N.D.		N.D.		N.D.
10	<i>Vibrio cholerae</i> O139 (cfu /100mL)		N.D.		N.D.		N.D.



Centre of Marine
Environmental Measurements, FIO,
SOA

Test Report

Report Number: [2013] **C0436**

Entrust Entity: Jiangsu Nanji Machinery Co., Ltd

Samples: Water quality, Organisms (>10μm), Microbes

Inspection Institution: The First Institute Of Oceanography,

SOA

Approval: Yuefen Yin

Issue date: 2013-9-25

Address: No. 6, Xianxia ridge road, Qingdao

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Applicant	Name : Jiangsu Nanji Machinery Co., Ltd Address : No.1 Zhongyuan Road Industry District Taixing, Jiangsu, China			Contact : Liqing Wang Tel : 0523-87590805	
Sample Information	Sample arrival date: 2013.07.16, 2013.07.25			Testing period: 2013.07.16-08.16	
	Name : Water quality, Organisms (>10μm), Microbes			Sample Numbers : 72	
	Mark : S-A-B-C-X-T-S-2: S-sample; A-test cycle, include: 1,2,3; B-sampling point, include 1,2,4,5; C-sampling time during test cycle, include I,II,III, I-initial time of test, II-middle time of test, III-later period of test; X-test items, include: A,B,C,E,(for organisms ≥50 μm as A, organisms of 10 μm ~50 μm as B, microbes as C, Water quality as E; stay time as T; shipboard test as S; the second time shipboard test as 2).			State: Water samples were liquid in 2.5L plastic bucket; viable organisms concentrated in 150 mL PET bottles; water for microbes test in 500mL sterilized glass bottles.	
	Acceptor & sampling person: Yuefen Yin			Sample Transfer Number: 2013.07.16 2013.07.25	
	Code of submitting list: 201348				
	Test Items	Parameters	Standards	Test methods	device/type
Test Process	Water quality	Temperature (T°C), Salinity (S), TSS, POC	GB17378.4-2007	T°C, S, POC, by instrumental analysis; TSS: gravimetric method	Multi-parameter water quality meters YSI 6600; Element analyzer Balance AL104
	organisms	≥50μm	GB17378.7-2007	count with microscope	Nikon-TS100 microscope
	organisms	10μm~50μm	GB17378.7-2007	count with microscope	Nikon-TS100 microscope
	microbe	heterotrophic bacteria, <i>Vibrio cholerae</i> , <i>E.coli</i> , intestinal <i>Enterococci</i>	GB17378.7-2007	Plate method, Filter membrane method	
Test Results	Appendix: Results of Shipboard Test Report of NiBallast™BWMS -----End of the Report-----				
Conner	Li JingXi	Verifier	Yang BaiJuan	Approver	Yin Yuefen
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Centre of Marine Environmental Measurements, FIO, SOA

Report Number: [2013]C0436

Applicant	Name : Jiangsu Nanji Machinery Co., Ltd	contact: Liqing Wang			
	Address : No.1 Zhongyuan Road Industry District Taixing, Jiangsu, China	Tel: 0523-87590805			
	Sample arrival date: 2013.07.16, 2013.07.25	Testing period: 2013.07.16-08.16			
C		The 800m ³ /h shipboard testing of NiBallast TM BWMS produced by Jiangsu Nanji Machinery Co., Ltd was conducted between Shishi port, Quanzhou City, Fujian province and Huanghua port, Hebei province. The results are as follows.			
O		1) The salinity, TSS, and POC of test water were 33.80 psu, 53.87 mg/L and 0.48 mg/L, respectively.			
N		2) Viable organisms ($\geq 50 \mu\text{m}$) in influent were found <i>Globigerina bulloides</i> , <i>Tintinnidium sp.</i> , <i>Tintinnopsis tentaculata</i> , <i>Eucalanus subcrassus</i> , <i>Paracalanus parvus</i> , <i>Acartia pacifica labidocera euchaeta</i> , <i>opossum shrimp</i> , <i>Sagitt enflata</i> , <i>Bacillariophyta</i> , <i>pyrroptata</i> , <i>chlorophyta</i> and <i>cyanophyta</i> . The density of this size fraction in the influent water was 1.01×10^5 cells per cubic meter. After 9 days, there was no any kind of organism in the effluent water of treated water. After 9 days, the total density of organisms in effluent water of control tank was 1.28×10^4 cells per cubic meter.			
C		3) The majority of the phytoplankton ($10 \mu\text{m} \sim 50 \mu\text{m}$) consists of <i>Skeletonema costatum</i> , <i>Chaetoceros curvisetus Cleve</i> , <i>Navicula sp</i> , <i>Thalassionema frauenfeldii</i> (Grunow) Hallegraff, <i>Coscinodiscus asteromphalus</i> , <i>Pseuduo-nizschia pungens</i> , <i>biddulphia sinensis</i> , <i>Melosira sulcata</i> , <i>Ditylum brightwellii</i> Grunow, <i>Rhizosolenia sinensis</i> , <i>Rhizosolenia styliformis</i> ., <i>Protoperidinium conicum</i> , <i>Asterionella sp.</i> , <i>Ceratium tripos</i> , etc. The density of this size fraction in the influent water was 6.05×10^3 cells per milliliter. After 9 days, there were 2.7 cells per milliliter in the treatment ballast water. After after 9 days, the total density of organisms in the control tank was 6.26×10^2 cells per milliliter.			
L		4) Heterotrophic bacteria was abundant in influent before treatment, the density was 9.05×10^4 cfu per milliliter. For <i>E.coli</i> , the density was 38 cfu per 100 milliliter; for intestinal <i>Enterococci</i> , was 9 cfu per 100 milliliter. <i>Vibrio cholerae</i> was not detected; After 9 days, in the discharge water of treatment tank, for <i>E.coli</i> , the density was 11 cfu per 100 milliliter. Intestinal <i>Enterococci</i> was 1 cfu per 100 milliliter, <i>Vibrio cholerae</i> O1 and O139 were not detected. After 9 days, in discharge water of control tanks, for <i>E.coli</i> , the density was 22 cfu per 100 milliliter; for <i>Vibrio cholerae</i> was 6 cfu per 100 milliliter. And no <i>Vibrio cholerae</i> O1, O139 organisms were detected.			
Editor	Li JingXi	Verifier	Yang BaiJuan	Approver	Yin Yuefen
Editing date	2013-09-23	Verifying date	2013-09-24	Approving date	2013-09-25

Appendix : Results of Shipboard Test of NiBallastTM BWMS

S1 (Before the treatment systems)

Number	Test Items	10 min		50 min		80 min	
		NO.	result	NO.	result	NO.	result
1	Temperature (°C)	S-2-1-I-E- 0-S-2	25.13	S-2-1-II-E- 0-S-2	25.16	S-2-1-III-E- 0-S-2	25.13
2	Salinity (psu)		33.72		33.76		33.84
3	TSS (mg/L)		51.60		52.60		52.10
8	POC (mg/L)		0.48		0.50		0.49
9	Organisms ≥50 µm (10 ⁵ cell/m ³)	S-2-1-I-A -0-S-2	0.98	S-2-1-II-A- 0-S-2	1.10	S-2-1-III-A- 0-S-2	0.95
10	Organisms 10 µm~50 µm (10 ³ cell/mL)	S-2-1-I-B- 0-S-2	6.30	S-2-1-II-B- 0-S-2	5.80	S-2-1-III-B- 0-S-2	6.10
11	<i>E.coli</i> (cfu/100mL)	S-2-1-I-C- 0-S-2	33	S-2-1-II-C- 0-S-2	41	S-2-1-III-C- 0-S-2	38
12	Intestinal <i>Enterococci</i> (cfu/100mL)		8		7		8
13	<i>Heterotrophic bacteria</i> (10 ⁴ cfu/mL)		8.9		8.3		9.2
14	<i>Vibrio cholerae</i> (cfu /100mL)		N.D.		N.D.		N.D.

S2 (before the control ballast tank)

Number	Test Items	10 min		50 min		80 min	
		NO.	result	NO.	result	NO.	result
1	Temperature (°C)	S-2-2-I-E- 0-S-2	25.68	S-2-2-II-E- 0-S-2	25.47	S-2-2-III-E- 0-S-2	25.37
2	Salinity (psu)		33.88		33.85		33.75
3	TSS (mg/L)		53.60		53.80		59.50
8	POC (mg/L)		0.45		0.48		0.47
9	Organisms $\geq 50 \mu\text{m}$ ($10^5 \text{cell}/\text{m}^3$)	S-2-2-I-A -0-S-2	1.11	S-2-2-II-A- 0-S-2	1.02	S-2-2-III-A- 0-S-2	0.91
10	Organisms $10 \mu\text{m} \sim 50 \mu\text{m}$ ($10^3 \text{cell}/\text{mL}$)	S-2-2-I-B- 0-S-2	6.10	S-2-2-II-B- 0-S-2	5.70	S-2-2-III-B- 0-S-2	6.30
11	<i>E.coli</i> (cfu/100mL)	S-2-2-I-C- 0-S-2	37	S-2-2-II-C- 0-S-2	39	S-2-2-III-C- 0-S-2	37
12	Intestinal <i>Enterococci</i> (cfu/100mL)		11		9		8
13	Heterotrophic bacteria ($10^4 \text{cfu}/\text{mL}$)		9.1		9.6		9.2
14	<i>Vibrio cholerae</i> (cfu /100mL)		N.D.		N.D.		N.D.

S4 (Discharge of treatment tank)

Number	Test Items	10 min		30 min		50 min	
		NO.	result	NO.	result	NO.	result
1	Temperature (°C)	S-2-4-I (1) -E-9d-S-2	26.50	S-2-4-II (1) -E-9d-S-2	26.80	S-2-4-III (1) -E-9d-S-2	26.85
		S-2-4-I (2) -E-9d-S-2	26.30	S-2-4-II (2) -E-9d-S-2	26.88	S-2-4-III (2) -E-9d-S-2	27.04
		S-2-4-I (3) -E-9d-S-2	26.77	S-2-4-II (3) -E-9d-S-2	26.95	S-2-4-III (3) -E-9d-S-2	27.10
2	Salinity (psu)	S-2-4-I (1) -E-9d-S-2	33.61	S-2-4-II (1) -E-9d-S-2	33.73	S-2-4-III (1) -E-9d-S-2	33.76
		S-2-4-I (2) -E-9d-S-2	33.72	S-2-4-II (2) -E-9d-S-2	33.69	S-2-4-III (2) -E-9d-S-2	33.72
		S-2-4-I (3) -E-9d-S-2	33.70	S-2-4-II (3) -E-9d-S-2	33.72	S-2-4-III (3) -E-9d-S-2	33.73
3	TSS (mg/L)	S-2-4-I (1) -E-9d-S-2	27.30	S-2-4-II (1) -E-9d-S-2	24.70	S-2-4-III (1) -E-9d-S-2	25.40
		S-2-4-I (2) -E-9d-S-2	26.60	S-2-4-II (2) -E-9d-S-2	25.90	S-2-4-III (2) -E-9d-S-2	26.60
		S-2-4-I (3) -E-9d-S-2	25.10	S-2-4-II (3) -E-9d-S-2	26.70	S-2-4-III (3) -E-9d-S-2	27.00
4	POC (mg/L)	S-2-4-I (1) -E-9d-S-2	0.30	S-2-4-II (1) -E-9d-S-2	0.31	S-2-4-III (1) -E-9d-S-2	0.29
		S-2-4-I (2) -E-9d-S-2	0.27	S-2-4-II (2) -E-9d-S-2	0.29	S-2-4-III (2) -E-9d-S-2	0.30
		S-2-4-I (3) -E-9d-S-2	0.31	S-2-4-II (3) -E-9d-S-2	0.33	S-2-4-III (3) -E-9d-S-2	0.32
5	Organisms ≥50 μm (cell/m³)	S-2-4-I (1) -A-9d-S-2	0	S-2-4-II (1) -A-9d-S-2	0	S-2-4-III (1) -A-9d-S-2	0
		S-2-4-I (2) -A-9d-S-2	0	S-2-4-II (2) -A-9d-S-2	0	S-2-4-III (2) -A-9d-S-2	0
		S-2-4-I (3) -A-9d-S-2	0	S-2-4-II (3) -A-9d-S-2	0	S-2-4-III (3) -A-9d-S-2	0
6	Organisms 10 μm~50 μm (cell/mL)	S-2-4-I (1) -B-9d-S-2	2.8	S-2-4-II (1) -B-9d-S-2	2.4	S-2-4-III (1) -B-9d-S-2	2.5
		S-2-4-I (2) -B-9d-S-2	2.9	S-2-4-II (2) -B-9d-S-2	2.6	S-2-4-III (2) -B-9d-S-2	2.8
		S-2-4-I (3) -B-9d-S-2	3.0	S-2-4-II (3) -B-9d-S-2	2.7	S-2-4-III (3) -B-9d-S-2	2.7

S4 (Discharge of treatment tank) Continue

Number	Test Items	10 min		30 min		50 min	
		NO.	result	NO.	result	NO.	result
7	<i>E.coli</i> (cfu/100mL)	S-2-4-I (1) -C-9d -S-2	10	S-2-4-II (1) -C-9d -S-2	11	S-2-4-III (1) -C-9d -S-2	12
		S-2-4-I (2) -C-9d -S-2	9	S-2-4-II (2) -C-9d -S-2	10	S-2-4-III (2) -C-9d -S-2	11
		S-2-4-I (3) -C-9d -S-2	11	S-2-4-II (3) -C-9d -S-2	10	S-2-4-III (3) -C-9d -S-2	11
8	Intestinal <i>Enterococci</i> (cfu/100mL)	S-2-4-I (1) -C-9d -S-2	1	S-2-4-II (1) -C-9d -S-2	2	S-2-4-III (1) -C-9d -S-2	1
		S-2-4-I (2) -C-9d -S-2	1	S-2-4-II (2) -C-9d -S-2	1	S-2-4-III (2) -C-9d -S-2	2
		S-2-4-I (3) -C-9d -S-2	1	S-2-4-II (3) -C-9d -S-2	1	S-2-4-III (3) -C-9d -S-2	2
9	<i>Vibrio cholerae</i> O1 (cfu /100mL)	S-2-4-I (1) -C-9d -S-2	N.D.	S-2-4-II (1) -C-9d -S-2	N.D.	S-2-4-III (1) -C-9d -S-2	N.D.
		S-2-4-I (2) -C-9d -S-2	N.D.	S-2-4-II (2) -C-9d -S-2	N.D.	S-2-4-III (2) -C-9d -S-2	N.D.
		S-2-4-I (3) -C-9d -S-2	N.D.	S-2-4-II (3) -C-9d -S-2	N.D.	S-2-4-III (3) -C-9d -S-2	N.D.
10	<i>Vibrio cholerae</i> O139 (cfu /100mL)	S-2-4-I (1) -C-9d -S-2	N.D.	S-2-4-II (1) -C-9d -S-2	N.D.	S-2-4-III (1) -C-9d -S-2	N.D.
		S-2-4-I (2) -C-9d -S-2	N.D.	S-2-4-II (2) -C-9d -S-2	N.D.	S-2-4-III (2) -C-9d -S-2	N.D.
		S-2-4-I (3) -C-9d -S-2	N.D.	S-2-4-II (3) -C-9d -S-2	N.D.	S-2-4-III (3) -C-9d -S-2	N.D.

S5 (Discharge of control tank)

Number	Test Items	10 min		30 min		50 min	
		NO.	result	NO.	result	NO.	result
1	Temperature (°C)	S-2-5-I-E- 9d-S-2	26.27	S-2-5-II-E- 9d-S-2	26.26	S-2-5-III-E- 9d-S-2	26.43
2	Salinity (psu)		33.79		33.84		33.84
3	TSS (mg/L)		38.60		36.90		40.50
8	POC (mg/L)		0.35		0.36		0.38
9	Organisms ≥50 μm (10 ⁴ cell/m ³)	S-2-5-I-A -9d-S-2	1.36	S-2-5-II-A- 9d-S-2	1.37	S-2-5-III-A- 9d-S-2	1.12
10	Organisms 10 μm~50 μm (10 ² cell/mL)	S-2-5-I-B- 9d-S-2	6.32	S-2-5-II-B- 9d-S-2	6.28	S-2-5-III-B- 9d-S-2	6.18
11	<i>E.coli</i> (cfu/100mL)	S-2-5-I-C- 9d-S-2	21	S-2-5-II-C- 9d-S-2	23	S-2-5-III-C- 9d-S-2	22
12	Intestinal <i>Enterococci</i> (cfu/100mL)		5		4		7
13	<i>Vibrio cholerae</i> O1 (cfu /100mL)		N.D.		N.D.		N.D.
14	<i>Vibrio cholerae</i> O139 (cfu /100mL)		N.D.		N.D.		N.D.



Centre of Marine Environmental
Measurements, FIO, SOA

Test Report

Report Number: [2013] **C0437**

Entrust Entity: Jiangsu Nanji Machinery Co., Ltd

Samples: Water quality, Organisms (>10μm), Microbes

Inspection Institution: The First Institute Of Oceanography,
SOA

Approval: Yuefen Yin

Issue date: 2013-9-25

Address: No. 6, Xianxia ridge road, Qingdao

Centre of Marine Environmental Measurements, FIO, SOA

Test report

Report Number: [2013] C0437

Applicant	Name : Jiangsu Nanji Machinery Co., Ltd			Contact : Liqing Wang		
	Address : No.1 Zhongyuan Road Industry District Taixing, Jiangsu, China			Tel : 0523-87590805		
Sample Information	Sample arrival date: 2013.08.03, 2013.08.20			Testing period: 2013.08.03-09.01		
	Name : water quality, organisms>10 μm organisms, microbes.			Sample Numbers : 72		
	Mark : S-A-B-C-X-T-S-2: S-sample; A-test cycle, include: 1,2,3; B-sampling point, include: 1,2,4,5; C-sampling time during test cycle, include I,II,III, I-initial time of test, II-middle time of test, III-later period of test; X-test items, include A,B,C,E,(for organisms ≥50 μm as A, organisms of 10 μm ~50 μm as B, microbes as C, Water quality as E; stay time as T; shipboard test as S; the second time shipboard test as 2).			State: Water samples were liquid in 2.5L plastic bucket; viable organisms concentrated in 150 mL PET bottles; water for microbes test in 500mL sterilized glass bottles.		
	Acceptor & sampling person: Yuefen Yin			Sample Transfer Number: 2013.08.03 2013.08.20		
	Code of submitting list: 201349					
	Test Items	Parameters	Standards	Test methods	device/type	Conner
Test Process	Water quality	Temperature (T°C), Salinity (S), TSS, POC	GB17378.4-2007	T°C, S, POC, by instrumental analysis; TSS: gravimetric method	Multi-parameter water quality meters YSI 6600; Element analyzer ELIII Balance AL104	Signature
	organisms	≥50μm	GB17378.7-2007	count with microscope	Nikon-TS100 microscope	Signature
	organisms	10μm~50μm	GB17378.7-2007	count with microscope	Nikon-TS100 microscope	Signature
	microbe	heterotrophic bacteria, <i>Vibrio cholerae</i> , <i>E.coli</i> , intestinal <i>Enterococci</i>	GB17378.7-2007	Plate method, Filter membrane method		Signature
	Test Results Appendix: Results of shipboard Testing Report of NiBallast™BWMS -----End of the Report-----					
Conner	Li JingXi	Verifier	Yang BaiJuan	Approver	YinYuefen	
Editing date	2013-09-23	Verifying date	2013-09-24	Approving date	2013-09-25	

Centre of Marine Environmental Measurements, FIO, SOA

Report Number: [2013] C0437

Applicant	Name : Jiangsu Nanji Machinery Co., Ltd	contact: Liqing Wang			
	Address : No.1 Zhongyuan Road Industry District Taixing, Jiangsu, China	Tel: 0523-87590805			
	Sample arrival date: 2013.08.03 2013.08.20	Testing period: 2013.08.03-09.01			
The 800m ³ /h shipboard test of NiBallast TM BWMS produced by Jiangsu Nanji Machinery Co., Ltd. was conducted in water between Shishi port, Fujian province and Tianjin port, Hebei province. The results are as follows:					
<p>1) The salinity, TSS, and POC of test water were 34.03 psu, 56.45 mg/L and 0.53 mg/L, respectively.</p> <p>2) Viable organisms ($\geq 50 \mu\text{m}$) in influent were found include <i>Tintinnopsis tentaculata</i>, <i>Eucalanus subcrassus</i>, <i>paracalanus parvus</i>, <i>Acartia pacifica</i>, <i>Labidocera euchaeta</i>, <i>Sagitta enflata</i>, <i>Mollusca</i> and <i>Bacillariophyta</i>, <i>Pyrroptata</i>, <i>Chlorophyta</i>, <i>Cyanophyta</i>, etc. The density of this size fraction in the influent water was 9.78×10^4 cells per cubic meter. After 17 days, there was no any kind of organism in effluent water of treated tank. After 17 days, the total density of organisms in effluent water of control tank was 6.03×10^3 cells per cubic meter.</p> <p>3) The majority of the phytoplankton (10 $\mu\text{m} \sim 50 \mu\text{m}$) consists of <i>Skeletonema costatum</i>, <i>Coscinodiscus asteromphalus</i>, <i>Rhizosolenia styliformis</i>, <i>Pinnularia sp.</i>, <i>Rhizosolenia Sinensis sp.</i>, <i>Ditylum curisetus Cleve</i>, <i>Thalassionema frauenfeldii</i>(Grunow) Hallegraeff, <i>Pseudo-nitzschia pungens</i>, <i>Biddulphia sinensis</i>, <i>Protoperidinium conicum</i>, etc. The density of this size fraction in the influent water was 1.13×10^3 cells per milliliter. 17 days later, the density of discharge water from treated tank was 2.5 cells per milliliter. And after 17 days, the total density of organisms in the control tank was 4.13×10^2 cells per milliliter.</p> <p>4) Heterotrophic bacteria was abundant in influent before treatment, the density was 1.79×10^5 cfu per milliliter. For <i>E.coli</i>, the density was 35 cfu per 100 milliliter; for intestinal <i>Enterococci</i>, was 27 cfu per 100 milliliter. <i>Vibrio cholerae</i> was not detected; After 17 days, in the discharge water of treatment tank for <i>E.coli</i>, the density was 12 cfu per 100 milliliter. Intestinal <i>Enterococci</i>, the density was 8 cfu per 100 milliliter; <i>Vibrio cholerae</i> O1 and O139 were not detected. After 17 days, in discharge water of control tanks,, for <i>E.coli</i>, the density was 21 cfu per 100 milliliter. For Intestinal <i>Enterococci</i>, the density was 15 cfu per 100 milliliter. And no <i>Vibrio cholerae</i> O1, O139 organisms were detected.</p>					
Editor	Li JingXi	Verifier	Yang BaiJuan	Approver	YinYuefen
Editing date	2013-09-23	Verifying date	2013-09-24	Approving date	2013-09-25

Appendix : Results of Shipboard Test of NiBallastTM BWMS

S1 (Before the treatment systems)

Number	Test Items	10 min		50 min		80 min	
		NO.	result	NO.	result	NO.	result
1	Temperature (°C)	S-3-1-I-E- 0-S-2	24.06	S-3-1-II-E- 0-S-2	24.28	S-3-1-III-E- 0-S-2	24.02
2	Salinity (psu)		34.01		34.04		34.12
3	TSS (mg/L)		58.30		60.60		59.80
8	POC (mg/L)		0.50		0.46		0.49
9	Organisms ≥50 µm (10 ⁴ cell/m ³)	S-3-1-I-A -0-S-2	9.74	S-3-1-II-A- 0-S-2	9.82	S-3-1-III-A- 0-S-2	9.73
10	Organisms 10 µm~50 µm (10 ³ cell/mL)	S-3-1-I-B- 0-S-2	1.15	S-3-1-II-B- 0-S-2	1.15	S-3-1-III-B- 0-S-2	1.12
11	<i>E.coli</i> (cfu/100mL)	S-3-1-I-C- 0-S-2	33	S-3-1-II-C- 0-S-2	30	S-3-1-III-C- 0-S-2	34
12	intestinal <i>Enterococci</i> (cfu/100mL)		20		29		28
13	Heterotrophic bacteria (10 ⁵ cfu/mL)		1.84		1.77		1.63
14	<i>Vibrio cholerae</i> (cfu /100mL)		N.D.		N.D.		N.D.

S2 (before the control ballast tank)

Number	Test Items	10 min		50 min		80 min	
		NO.	result	NO.	result	NO.	result
1	Temperature (°C)	S-3-2-I-E- 0-S-2	24.32	S-3-2-II-E- 0-S-2	24.40	S-3-2-III-E- 0-S-2	24.46
2	Salinity (psu)		34.01		34.03		33.99
3	TSS (mg/L)		54.70		53.50		51.80
8	POC (mg/L)		0.57		0.61		0.56
9	Organisms ≥50 µm (10 ⁴ cell/m ³)	S-3-2-I-A -0-S-2	9.90	S-3-2-II-A- 0-S-2	9.90	S-3-2-III-A- 0-S-2	9.60
10	Organisms 10 µm~50 µm (10 ³ cell/mL)	S-3-2-I-B- 0-S-2	1.07	S-3-2-II-B- 0-S-2	1.12	S-3-2-III-B- 0-S-2	1.18
11	<i>E.coli</i> (cfu/100mL)	S-3-2-I-C- 0-S-2	32	S-3-2-II-C- 0-S-2	42	S-3-2-III-C- 0-S-2	37
12	intestinal <i>Enterococci</i> (cfu/100mL)		28		25		29
13	Heterotrophic bacteria (10 ⁵ cfu/mL)		1.92		1.76		1.79
14	<i>Vibrio cholerae</i> (cfu /100mL)		N.D.		N.D.		N.D.

S4 (Discharge of treatment tank)

Number	Test Items	10 min		30 min		50 min	
		NO.	result	NO.	result	NO.	result
1	Temperature (°C)	S-3-4-I (1) -E-17d-S-2	28.71	S-3-4-II (1) -E-17d-S-2	29.67	S-3-4-III (1) -E-17d-S-2	30.48
		S-3-4-I (2) -E-17d-S-2	28.71	S-3-4-II (2) -E-17d-S-2	30.38	S-1-4-III (2) -E-3d-S-2	30.62
		S-3-4-I (3) -E-17d-S-2	29.18	S-3-4-II (3) -E-17d-S-2	30.37	S-3-4-III (3) -E-17d-S-2	30.65
2	Salinity (psu)	S-3-4-I (1) -E-17d-S-2	33.76	S-3-4-II (1) -E-17d-S-2	33.85	S-3-4-III (1) -E-17d-S-2	34.00
		S-3-4-I (2) -E-17d-S-2	33.80	S-3-4-II (2) -E-17d-S-2	34.23	S-1-4-III (2) -E-3d-S-2	34.01
		S-2-4-I (3) -E-17d-S-2	33.86	S-3-4-II (3) -E-17d-S-2	34.22	S-3-4-III (3) -E-17d-S-2	34.02
3	TSS (mg/L)	S-3-4-I (1) -E-17d-S-2	26.40	S-3-4-II (1) -E-17d-S-2	27.80	S-3-4-III (1) -E-17d-S-2	28.90
		S-3-4-I (2) -E-17d-S-2	25.90	S-3-4-II (2) -E-17d-S-2	29.00	S-3-4-III (2) -E-17d-S-2	27.10
		S-3-4-I (3) -E-17d-S-2	27.20	S-3-4-II (3) -E-17d-S-2	28.60	S-3-4-III (3) -E-17d-S-2	26.30
4	POC (mg/L)	S-3-4-I (1) -E-17d-S-2	0.34	S-3-4-II (1) -E-17d-S-2	0.34	S-3-4-III (1) -E-17d-S-2	0.35
		S-3-4-I (2) -E-17d-S-2	0.34	S-3-4-II (2) -E-17d-S-2	0.35	S-3-4-III (2) -E-17d-S-2	0.33
		S-3-4-I (3) -E-17d-S-2	0.32	S-3-4-II (3) -E-17d-S-2	0.35	S-3-4-III (3) -E-17d-S-2	0.32
5	Organisms ≥50 μm (cell/m³)	S-3-4-I (1) -A-17d -S-2	0	S-3-4-II (1) -A-17d-S-2	0	S-3-4-III (1) -A-17d-S-2	0
		S-3-4-I (2) -A-17d -S-2	0	S-3-4-II (2) -A-17d-S-2	0	S-3-4-III (2) -A-17d-S-2	0
		S-3-4-I (3) -A-17d -S-2	0	S-3-4-II (3) -A-17d-S-2	0	S-3-4-III (3) -A-17d-S-2	0
6	Organisms 10 μm~50 μm (cell/mL)	S-3-4-I (1) -B-17d -S-2	2.6	S-3-4-II (1) -B-17d-S-2	2.5	S-3-4-III (1) -B-17d-S-2	2.3
		S-3-4-I (2) -B-17d -S-2	2.4	S-3-4-II (2) -B-17d-S-2	2.6	S-3-4-III (2) -B-17d-S-2	2.4
		S-3-4-I (3) -B-17d -S-2	2.3	S-3-4-II (3) -B-17d-S-2	2.9	S-3-4-III (3) -B-17d-S-2	2.3

S4 (Discharge of treatment tank) Continue

Number	Test Items	10 min		30 min		50 min	
		No.	result	No.	result	No.	result
7	<i>E.coli</i> (cfu/100mL)	S-3-4-I (1) -C-17d -S-2	9	S-3-4-II (1) -C-17d -S-2	12	S-3-4-III (1) -C-17d -S-2	12
		S-3-4-I (2) -C-17d -S-2	12	S-3-4-II (2) -C-17d -S-2	10	S-3-4-III (2) -C-17d -S-2	11
		S-3-4-I (3) -C-17d -S-2	11	S-3-4-II (3) -C-17d -S-2	12	S-1-4-III (3) -C-3d -S-2	12
8	intestinal <i>Enterococci</i> (cfu /100mL)	S-3-4-I (1) -C-17d -S-2	7	S-3-4-II (1) -C-17d -S-2	7	S-3-4-III (1) -C-17d -S-2	8
		S-3-4-I (2) -C-17d -S-2	6	S-3-4-II (2) -C-17d -S-2	8	S-3-4-III (2) -C-17d -S-2	8
		S-3-4-I (3) -C-17d -S-2	8	S-3-4-II (3) -C-17d -S-2	7	S-3-4-III (3) -C-17d -S-2	7
9	<i>Vibrio cholerae</i> O1 (cfu /100mL)	S-3-4-I (1) -C-17d -S-2	N.D.	S-3-4-II (1) -C-17d -S-2	N.D.	S-3-4-III (1) -C-17d -S-2	N.D.
		S-3-4-I (2) -C-17d -S-2	N.D.	S-3-4-II (2) -C-17d -S-2	N.D.	S-3-4-III (2) -C-17d -S-2	N.D.
		S-3-4-I (3) -C-17d -S-2	N.D.	S-3-4-II (3) -C-17d -S-2	N.D.	S-3-4-III (3) -C-17d -S-2	N.D.
10	<i>Vibrio cholerae</i> O139 (cfu /100mL)	S-3-4-I (1) -C-17d -S-2	N.D.	S-3-4-II (1) -C-17d -S-2	N.D.	S-3-4-III (1) -C-17d -S-2	N.D.
		S-3-4-I (2) -C-17d -S-2	N.D.	S-3-4-II (2) -C-17d -S-2	N.D.	S-3-4-III (2) -C-17d -S-2	N.D.
		S-3-4-I (3) -C-17d -S-2	N.D.	S-3-4-II (3) -C-17d -S-2	N.D.	S-3-4-III (3) -C-17d -S-2	N.D.

S5 (Discharge of control tank)

Number	Test Items	10 min		30 min		50 min	
		NO.	result	NO.	result	NO.	result
1	Temperature (°C)	S-3-5-I- E-17d -S-2	28.25	S-3-5- II -E-17d -S-2	28.98	S-3-5-III -E-17d -S-2	29.22
2	Salinity (psu)		33.83		33.87		33.88
3	TSS (mg/L)		42.70		41.40		43.10
8	POC (mg/L)		0.39		0.41		0.40
9	Organisms $\geq 50 \mu\text{m}$ ($10^3 \text{cell}/\text{m}^3$)	S-3-5-I- A-17d -S-2	6.16	S-3-5- II -A-17d -S-2	5.95	S-3-5-III -A-17d -S-2	5.97
10	Organisms $10 \mu\text{m} \sim 50 \mu\text{m}$ ($10^2 \text{cell}/\text{mL}$)	S-3-5-I- B-17d -S-2	4,30	S-3-5- II -B-17d -S-2	4.30	S-3-5-III -B-17d -S-2	3.80
11	<i>E.coli</i> (cfu/100mL)	S-3-5-I- C-17d-S-2	20	S-3-5- II -C-17d-S-2	24	S-3-5-III -C-17d-S-2	19
12	intestinal <i>Enterococci</i> (cfu/100mL)		14		15		15
13	<i>Vibrio cholerae</i> O1 (cfu /100mL)		N.D.		N.D.		N.D.
14	<i>Vibrio cholerae</i> O139 (cfu /100mL)		N.D.		N.D.		N.D.